

**REBUILD ATLANTA  
ENERGY AUDITOR'S REPORT  
BEN HILL RECREATION CENTER**

Prepared: August 9, 2004  
Prepared By: Cyrus Bhedwar, City of Atlanta  
Jennifer Kiesel, Servidyne Systems, LLC.  
Assisted By: Jeff Berg, Parks Design  
Frank Fossie, Parks, Contracts Compliance  
Connie Thiery, Parks Central Services  
William Walker, Building Supervisor



## **REPORT PREFACE**

The information contained in this report consists of findings and recommendations conducted by the City of Atlanta's Energy Conservation Program through the Rebuild Atlanta initiative. The following information was gathered during a walk-through type audit designed to assess the general condition of the facility with an emphasis on discovering energy efficiency opportunities. All related observations and recommendations are based on the best available knowledge of the auditors and should not be considered conclusive, but rather an indication of building conditions. Any actions taken should be done so with the independent advice of experts. The Energy Conservation Program will be pleased to assist the Department of Parks, Recreation & Cultural Affairs in coordinating this technical assistance.



## Building Summary

**Ben Hill Recreation Center  
2405 Fairburn Road, S.W.  
Atlanta, Georgia 30311**

Year Built:	1996
Building Size:	35,000 square feet (two stories)
Occupants:	5 FTE
Operating Schedule:	10:00 a.m. – 10:00 p.m. M-F, 8:30/12:00 – 5:00 p.m., Sat.-Sun.
Electricity Cost (2003):	\$38,106
Electricity Usage (2003):	510,240 kWh
Cost Per Square Foot:	\$1.08/ft <sup>2</sup>
Usage Per Square Foot:	14.57 kWh/ft <sup>2</sup>

## Recommendations

This section focuses on items that will be pursued by the Energy Conservation Program in cooperation with your department. Follow-up actions are outlined in more detail in Appendix A.

- Lighting
  - Retrofit all fixtures with T12 lamps and magnetic ballasts to T8 and electronic ballasts
  - Retrofit all incandescent downlamps with compact fluorescent lamps
  - Replace incandescent exit signs with LED/ENERGY STAR fixtures
  - Consider occupancy sensors for bathrooms, classrooms and other infrequently occupied areas
  - Consider retrofitting gymnasium with high-output fluorescent lighting (pending results of pilot program)
- Heating, Ventilation and Cooling
  - Install programmable thermostat/energy management system to enable temperature setback during unoccupied hours
  - Clean outside air intakes



### Reported Items

This section contains items that were noted during the energy audits but do not fall under the scope of the Energy Conservation Program. Additional detail on these items is provided in Appendix B.

There were no items to report in this section.



## Narrative

The Ben Hill Recreation Center is a mid-sized recreation center of relatively recent construction in good condition. As with many Parks facilities, Ben Hill was diligently maintained, and recommendations are focused on enhancing basic energy management systems and providing ongoing support to ensure their continued function. Bureau of Parks technical staff do not report any significant problems with this facility other than wear and tear common to most Parks facilities.

Ben Hill Recreation Center is a 35,000 square foot facility comprised of a gymnasium, community and activity rooms, locker rooms and showers as well as small office/administrative and food service areas. Like most recreation centers this size, the facility does not house a swimming pool.

## *Lighting*

As found in most city buildings of this age, lighting is primarily comprised of T12, 40 W fluorescent fixtures with magnetic ballasts. These can be replaced with higher efficiency T8 lamps and electronic ballasts that reduced energy consumption without impacting lighting quality. This type of lighting retrofit only requires the replacement of the lamp and ballast, not the entire fixture and can be performed either with in-house technical staff or by a lighting contractor.

The gymnasium is lit with metal halide lamps common to gymnasiums in recreation centers throughout Atlanta. Metal halide lamps are increasingly being replaced with high-output fluorescent fixtures that have several advantages, including better light quality, more lighting control options and potentially lower maintenance requirements. Fluorescent fixtures also turn on and “warm-up” more rapidly, reaching full brightness much quicker than metal halide lamps. Finally, fluorescent lamps maintain 90-95% of their brightness over the life of the lamp compared with 70-80% for metal halides.

Exit signs are the conventional incandescent type. Newer, more efficient and more reliable LED (light emitting diode) exit signs can last up to 20 years and reduce energy use by 90%, almost eliminating maintenance requirements.

## *Heating and Cooling*

The center currently has limited ability to set back heating and cooling setpoints during unoccupied periods. Some means of controlling heating, cooling, and fan energy use during unoccupied times appears to have some significant benefit for reducing center energy use.

Cooling temperatures could be set up to 83 F or so during unoccupied times. Heating setpoints could be reduced to 55 F or so. Fans could be changed to cycle on only when heating or cooling is demanded by thermostats at these extended setpoints.



The exact control scheme for achieving these savings is not described in any detail here, and will depend on several factors, including maintenance issues at the time of system design. In general, during the heating season the furnace should be turned off when the building is scheduled to be unoccupied. Depending on the level of control and experience with how long the heating system takes to bring the building back up to an acceptable temperature before activities begin each day, the heating system would be turned on at some time before occupancy to heat the building back up to an acceptable range each day. The furnace should be off as much as possible. Gas use in June through October can probably be avoided almost entirely. Avoid overheating.

During periods of cooling, the furnace should never run, and the cooling setpoints adjusted to maintain a reasonable balance of temperature, balancing zone needs as best possible. Cooling units should be turned on an acceptable time before occupancy to cool the building down to an acceptable range.

### Goals

The goals for this building are focused on two areas, lighting and HVAC.

Due to the relatively simple nature and straightforward benefits of a lighting retrofit, this building is an excellent candidate for a lighting retrofit in accordance with the City of Atlanta Lighting Guidelines.

The second major goal for the facility is to establish control over the HVAC system. It is likely that this measure, if properly implemented and maintained, will result in considerable savings for the facility without affecting occupant comfort.

### Conclusion

Consistent with findings at other recreational facilities in the City of Atlanta, Ben Hill reflects that the dedicated facility managers operating these centers could benefit from additional technical training to maximize their efforts and minimize energy waste. Given the appropriate knowledge and technology, the Bureau of Recreation can make a significant contribution to Atlanta's Energy Conservation Program.



## **Appendix A: Recommended Actions (Follow-up Actions Planned)**

### Lighting

Schedule lighting retrofit for all T12 fixtures and LED Exit Signs as recommended by the *City of Atlanta Lighting Retrofit Guidelines*.

Consider retrofit of gymnasium lighting with high output fluorescent (pending results of pilot program).

### HVAC

Work with HVAC contractor to institute an HVAC controls system that enables temperature setback during unoccupied periods. See *Department of Parks, Recreation & Cultural Affairs, HVAC Controls Pilot Project* attached as separate document.

Regular and thorough cleaning of the outdoor air intakes should be added to HVAC service contractors' scope of services.



## **Appendix B: Reported Items (No Follow-up Action Planned)**

There are no items to report in this section.





## **Appendix C: Additional Resources**

### Lighting

Please see separate attachments, *City of Atlanta Lighting Retrofit Guidelines*, for information on how to conduct a building lighting upgrade.

### HVAC

Please see the separate attachment, *Department of Parks, Recreation & Cultural Affairs, HVAC Controls Pilot Project*, for information on how to improve HVAC system control.



## **Appendix D: 12 Month Utility Data**

The Table on the following page shows the electricity use, cost and peak demand for the year 2003. The top graph, labeled “Cost vs. Usage” shows the relationship between electricity consumption and cost for the year 2003. The bottom graph, labeled “Cost vs. Demand” shows the relationship between cost and peak demand for the year 2003.

Jan-03	32,560	97	\$2,948
Feb-03	29,600	89	\$2,693
Mar-03	30,080	150	\$2,734
Apr-03	35,440	150	\$3,036
May-03	46,160	155	\$3,313
Jun-03	61,280	163	\$3,704
Jul-03	69,040	176	\$4,048
Aug-03	55,440	156	\$3,589
Sep-03	56,320	162	\$3,612
Oct-03	34,880	146	\$3,045
Nov-03	28,480	149	\$2,586
Dec-03	30,960	130	\$2,798

